

REMARKS

Claims 2, 4, 9-11, 22, 24, and 29-31 have been canceled. Claims 1, 3, 7, 8, 12-14, 18, 19, 21, 23, 27, 28, 32-34, 38, and 39 have been amended (i.e. by substitution). Claims 41-50 have been newly added. Claims 1, 3, 5-8, 12-21, 23, 25-28, and 32-50 are therefore pending. It should be noted that original claims 11 and 31 have been rewritten in independent form by incorporating the limitations into claims 1 and 21, respectively (i.e. except for the change of "mirror coating" to "reflective coating").

The Applicant appreciates the indication of the allowable subject matter of claims 16 and 36 as indicated by the Examiner in paragraph 9 of the Office Action mailed October 23, 2002.

It should be noted that the Examiner has deemed original claims 16 and 36 as allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. In response, original claims 16 and 36 have been rewritten in independent form as newly added claims 44 and 49, respectively.

Applicant wishes to thank Examiner Cruz for the telephone conversation which occurred on April 21, 2003. During the conversation, Takada et al (U.S. Patent No. 6,020,090) and claims 11 and 31 were discussed.

Amended claim 1 (which now includes substantially all the limitations of original claim 11) is directed to an optical display system for displaying a projected image, comprising: a projector that projects an image beam that forms the projected image; a prismatic optical panel, wherein the panel includes a prismatic first side optically aligned with the projector for receiving the image beam at an acute angle of incidence thereto, wherein the panel is effective for reflecting the image beam, wherein the panel displays the reflected image beam from an opposite second side thereof, wherein the panel first side includes a multitude of parallel elongated prisms, and wherein

each of the prisms includes a first facet for channeling the image beam therethrough, and an opposite second facet adjoining the first facet for reflecting the image beam toward the panel second side; and a reflective coating at each the second facet for effecting specular reflection of the image beam inside the prisms. Claim 21 (which now includes substantially all the limitations of original claim 31) contains similar limitations with respect to these underlined features and, therefore, the following argument is also applicable therefor.

In paragraph 5 of the Office Action, the Examiner rejected previous claim 11 under 35 U.S.C. § 103(a) over Takahashi et al (U.S. Patent No. 4,729,631) in view of Takada et al (U.S. Patent No. 6,020,090). However, none of the features underlined in the paragraph above are shown or suggested by Takahashi et al or Takada et al. In view of the absence of such teachings, it is respectfully submitted that the invention of amended claim 1 is neither shown nor suggested by the cited prior art. For example, although Takada et al discloses a mirror coating 615 for effecting specular reflection of the image beam inside the prism sheet 614, Takada et al's col. 25, lines 47-49 and Takada et al's Figures 38 and 40 explain/illustrate that the mirror coating 615 is on both facets of the serrated side of the prism sheet 614. Since both facets include the mirror coating 615 thereon, there is no first facet which channels an image beam therethrough as per amended claim 1. Further, Takahashi et al's panel does not disclose a mirror coating on any facet and, in significant contrast to both the present invention (as per amended claim 1) and Takada et al, Takahashi et al uses only total internal reflection to reflect the light within the prism at the second facet. Moreover, Takahashi et al has the image light passing completely through the prism sheet, whereas image light in Takada et al enters and exits through the same side (i.e. the flat side) of the prism sheet 614. Thus, the prism sheet in Takahashi et al functions very differently than the prism sheet in Takada et al and therefore, Takahashi et al cannot be combined with Takada et al to arrive at the claimed subject matter. Since the cited prior art lack a teaching of these claimed features, Applicant respectfully submits the cited prior art, either alone or in

combination, fails to teach the present invention as now claimed. As such, withdrawal of this rejection is respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that pending independent claims 1, 21, 44, and 49 are in condition for allowance. In addition, it is respectfully submitted that the remaining claims are allowable, because such claims depend from an allowable base claim. Reconsideration and further examination of the present application is therefore requested, and a notice of allowance is earnestly solicited.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADEIN THE CLAIMS

Please cancel claims 2, 4, 9-11, 22, 24, and 29-31.

Please substitute claims 1, 3, 7, 8, 12-14, 18, 19, 21, 23, 27, 28, 32-34, 38, and 39 for the corresponding pending claim(s) with the same number(s) as follows:

1. (Amended) An optical display system for displaying a projected image, comprising:  
a projector that projects an image beam that forms the projected image; [and]  
a prismatic optical panel [optically aligned with said projector, wherein said panel receives said image beam, turns said image beam, and displays said turned image beam], wherein said panel includes a prismatic first side optically aligned with said projector for receiving said image beam at an acute angle of incidence thereto, wherein said panel is effective for reflecting said image beam, wherein said panel displays said reflected image beam from an opposite second side thereof, wherein said panel first side includes a multitude of parallel elongated prisms, and wherein each of said prisms includes a first facet for channeling said image beam therethrough, and an opposite second facet adjoining said first facet for reflecting said image beam toward said panel second side; and  
a reflective coating at each said second facet for effecting specular reflection of said image beam inside said prisms.
3. (Amended) A display system according to claim [2] 1 wherein the projector comprises imaging optics that image said image beam across said panel first side, wherein said imaging optics laterally and transversely scale said image beam.

7. (Amended) A display system according to claim [2] 1 further comprising a diffuser at said panel second side.
8. (Amended) A display system according to claim [4] 1 wherein said panel has a width and a height, and wherein said prisms extend in length laterally across said panel width, and are spaced transversely across said panel height.
12. (Amended) A display system according to claim [9] 1 wherein each of said prisms is elongated and triangular, with said first and second facets defining opposite sides thereof intersecting at an apex having an included apex angle therebetween.
13. (Amended) A display system according to claim [9] 1 wherein said first and second facets of adjoining prisms define a groove therebetween.
14. (Amended) A display system according to claim [2] 1 further comprising a light control layer at said panel second side.
18. (Amended) A display system according to claim [2] 1 wherein said panel includes a tint comprising dark dye molecules or dark particulates.
19. (Amended) A display system according to claim [2] 1 further comprising a tint layer at said panel second side, wherein said tint layer includes a tint comprising dark dye molecules or dark particulates.
21. (Amended) A method of displaying a projected image, said method comprising the steps of:

projecting an image beam with a projector, said image beam forming the projected image; and

receiving, turning, and displaying said image beam with a prismatic optical panel[, wherein said prismatic optical panel is optically aligned with said projector], wherein said panel includes a prismatic first side optically aligned with said projector, wherein said step of receiving said image beam occurs at an acute angle of incidence to the panel first side, wherein said step of displaying said image beam occurs at a panel second side which is opposite to the panel first side, wherein said panel first side includes a multitude of parallel elongated prisms, wherein said step of receiving said image beam comprises the step of channeling said image beam through first facets of said prisms, wherein said step of turning said image beam comprises the step of reflecting said image beam toward said panel second side, wherein said step of reflecting occurs at second facets which are opposite to said first facets, wherein each of said second facets adjoin a corresponding first facet, and wherein said second facets have a reflective coating thereat for effecting specular reflection of said image beam inside said prisms.

23. (Amended) A method according to claim [22] 21 wherein the step of projecting comprises imaging said image beam across said panel first side with imaging optics, wherein said imaging optics laterally and transversely scale said image beam.

27. (Amended) A method according to claim [22] 21 further comprising the step of diffusing the projected image with a diffuser at said panel second side.

28. (Amended) A method according to claim [24] 21 wherein said panel has a width and a height, and wherein said prisms extend in length laterally across said panel width, and are spaced transversely across said panel height.

32. (Amended) A method according to claim [29] 21 wherein each of said prisms is elongated and triangular, with said first and second facets defining opposite sides thereof intersecting at an apex having an included apex angle therebetween.

33. (Amended) A method according to claim [29] 21 wherein said first and second facets of adjoining prisms define a groove therebetween.

34. (Amended) A method according to claim [22] 21 further comprising the step of directing the projected image to a desired location with a light control layer at said panel second side.

38. (Amended) A display system according to claim [22] 21 wherein said panel includes a tint comprising dark dye molecules or dark particulates.

39. (Amended) A display system according to claim [22] 21 wherein said panel includes a tint layer at said panel second side, and wherein said tint layer includes a tint comprising dark dye molecules or dark particulates.

Please add new claims 41-50:

41. A display system according to claim 1, wherein said reflective coating is positioned at only a portion of each said second facet.

42. A display system according to claim 41, wherein said first and second facets define opposite sides thereof intersecting at an apex, and wherein said reflective coating is located substantially at the apex.

43. A display system according to claim 1, wherein said reflective coating comprises a mirror.
44. An optical display system for displaying a projected image, comprising:
  - a projector that projects an image beam that forms the projected image;
  - a prismatic optical panel, wherein said panel includes a prismatic first side optically aligned with said projector for receiving said image beam at an acute angle of incidence thereto, wherein said panel is effective for reflecting said image beam, wherein said panel displays said reflected image beam from an opposite second side thereof; and
    - a light control layer at said panel second side, wherein said light control layer comprises microlouvers which direct the projected image to a desired location, and wherein said microlouvers are dark in color such that ambient light is absorbed thereby enhancing contrast of said projected image.
45. A display system according to claim 44 wherein said microlouvers are encased in a thin film comprised of plastic or glass.
46. A method according to claim 21, wherein said reflective coating is positioned at only a portion of each said second facet.
47. A method according to claim 46, wherein said first and second facets define opposite sides thereof intersecting at an apex, and wherein said reflective coating is located substantially at the apex.
48. A method according to claim 21, wherein said reflective coating comprises a mirror.

49. A method of displaying a projected image, said method comprising the steps of: projecting an image beam with a projector, said image beam forming the projected image;

receiving, turning, and displaying said image beam with a prismatic optical panel, wherein said panel includes a prismatic first side optically aligned with said projector, wherein said step of receiving said image beam occurs at an acute angle of incidence to the panel first side, wherein said step of displaying said image beam occurs at a panel second side which is opposite to the panel first side; and

directing the projected image to a desired location with a light control layer at said panel second side, wherein said light control layer comprises microlouvers, and wherein said microlouvers are dark in color such that ambient light is absorbed thereby enhancing contrast of said projected image.

50. A method according to claim 49, wherein said microlouvers are encased in a thin film comprised of plastic or glass.

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